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ABSTRACT

The booklet discusses training methods and approaches for wheelchair track and field. Detailed information and charts are presented on types of workouts (such as interval, distance, rhythm, speed play, and pace work) and mechanics of track events. A section on relay strategy and coaching approaches concludes the document. (CL)

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March 1979

PRINCIPLES AND PRACTICES FOR CHAMPIONSHIP PERFORMANCES IN WHEELCHAIR TRACK EVENTS

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Special thanks and appreciation are extended to Bill Greene and members of the District of Columbia Smokers who incorporated many of these methods, techniques, and approaches into training programs during the 1977, 1978, and 1979 wheelchair track seasons. Adherence to these rigorous systematic training approaches were felt to be an important factor to personal improvement of each member of the Smokers. Even greater improvement is expected as athletes become more accustomed to procedures in systematic and scientific training necessary for championship performances.

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Interest and participation in wheelchair track and field are at all time highs and growing. Opportunities are increasing for both sexes, individuals of all ages, and participants with every type, level, and degree of handicapping condition. Organized programs with both formal and informal activities are provided by groups such as the National Wheelchair Athletic Association, National Association of Sports for Cerebral Palsy, state affiliates, local education agencies, park and recreation departments, service and civic associations, special and volunteer organizations.

Both The Education for All Handicapped Children Act (P.L. 94-142) and Section 504 of the Rehabilitation Act of 1973 (P.L. 93-112) give special attention to opportunities in extracurricular activities, including intramural, extramural, and interscholastic and intercollegiate sports, for individuals with handicapping conditions. A new dawn and golden era for wheelchair sports are upon us. Physical education, recreation, and sport programs of all types and descriptions and at every level will continue to grow and numbers of participants increase dramatically, especially in the next few years.

This Practical Pointer is designed to assist participants at whatever level each takes part, as well as coaches, physical education teachers, adapted physical education teaching and resource specialists, recreation leaders, therapeutic recreation personnel, volunteers, and others directly involved in wheelchair track. A companion Practical Pointer--Principles and Practices for Championship Performances in Wheelchair Field Events focuses specifically on wheelchair field events. An earlier Practical Pointer--Weight Training for Wheelchair Sports--deals with this increasingly important inclusion in comprehensive training programs and regimes for participants in all wheelchair sports, including track and field.

This Practical Pointer has been designed to supplement and complement, not duplicate existing materials dealing with wheelchair sports in general and track and field in particular. A selected list of resources including books, periodicals, organizations, and individuals, can be found on page 19 of this publication.

# # #

Fight one more round. When your feet are so tired that you have to shuffle back to the center of the ring, fight one more round. When your arms are so tired that you can hardly lift your hands to come on guard, fight one more round. When your nose is bleeding and your eyes are black and you are so tired that you wish your opponent would crack you one on the jaw and put you to sleep, fight one more round--remembering that the man who always fights one more round is never whipped.

James J. Corbbett

BASIC PRINCIPLES FOR CHAMPIONSHIP PERFORMANCES

Listings of previous winners and record holders in wheelchair track events reveal many of the same individuals dominating various events--sprints, middle distances, and long distances. As numbers of participants continue to increase in wheelchair track, greater specialization will be evident and necessary just as in track events involving able-bodied athletes. Physical and emotional characteristics, psychological approaches, and training emphases differ from event-to-event. Although specific differences exist among various wheelchair track events, a number of basic and fundamental principles apply and should be used by everyone regardless of competitive distances or combinations of events:

- Establish (1) season goals and (2) intermediate objectives for every event in which an individual athlete participates. Such direction provides bases for determining paces and training times for workouts and practice sessions. Intermediate objectives are established according to times key meets are scheduled throughout the competitive seasons. Both season goals and intermediate objectives must be periodically reviewed and adjusted up (faster) or down (slower) in terms of times in actual competition and progress during training workouts and practice sessions. Goals and objectives must be designed to challenge the individual athlete, make him/her reach and stretch, and bring out every ability in the competitor.

- Keep a personal log which includes (1) warm-up activities and how each specific activity and combination make the individual feel, (2) season goals and intermediate objectives, (3) information about training workouts and practice sessions, (4) pace splits from competition, (5) times from training workouts and practice sessions, (6) information about opponents, and (7) any other information to help the athlete perform better and more effectively.

- Experiment with different warn-up patterns and approaches until the best and most appropriate one for the individual athlete is determined. Continue to experiment with slight modifications in warm-up procedures so that they become even better and more effective for the individual.

- Determine how warm-up patterns and approaches differ for practice and competition in terms of (1) specific activities, (2) repetitions, and (3) timing. Practice warm-up routines include stretching and flexibility exercises as well as strength and endurance activities, form work, and emphasis on special needs of each athlete. Pre-meet warm-up routines and approaches include few if any strength and endurance activities, and place more emphasis on preparing for actual competitive events.

- Include in pre-meet warm-up routines and approaches every element within competitive events--practicing form, starting, sprinting, pacing, fighting off competitive challenges, and finishing in addition to initial basic warm-up activities.

- Be sure to re-warm-up prior to semifinals, finals, and/or second and third events when doubling or tripling in a meet. Too often insufficient attention is given to this important factor for insuring peak performances when competing more than once in a meet. Wear sweatshirts, stay out of the sun and remain in the shade between events to conserve body heat and avoid sapping effects of the sun.

- Recognize that doubling down--going from longer first to shorter second events--is more easily accomplished than doubling-up when taking part in more than one event in a meet; this is a more important consideration for middle and long distance events than for sprints. When differences in psychological and emotional preparation for each event are considered, appropriate double combinations become even more crucial for championship performances.

- Use movies, films, pictures, and other visual aids to help athletes see elements of good form; demonstrate and let other members of the squad serve as models.

- Include weight or resistance training as both an off and regular season supplement to basic training in track events. Be careful as to how and when weight is added to a wheelchair since this can disrupt pace judgment so vital in middle and long distance events. See Practical Pointer, Volume II, Number 6--Weight Training for Wheelchair Sports--for specific information about this training technique.

- Plan individual training workouts so that distances get shorter in each practice session. By funneling-in components of individual workouts, athletes are better able to deal psychologically with different distances and continue to exert efforts needed for maximum benefits from every element within each practice session or training workout.

- Develop workouts and practice sessions within each week so distances get longer and closer to that of the athlete's primary competitive event as the week progresses. In this way participating in the primary competitive event becomes the focal point for each week's workouts. Plan these workouts so each athlete's primary competitive distance is only done in actual competition--save these efforts for meets; don't leave championship performances in practice!

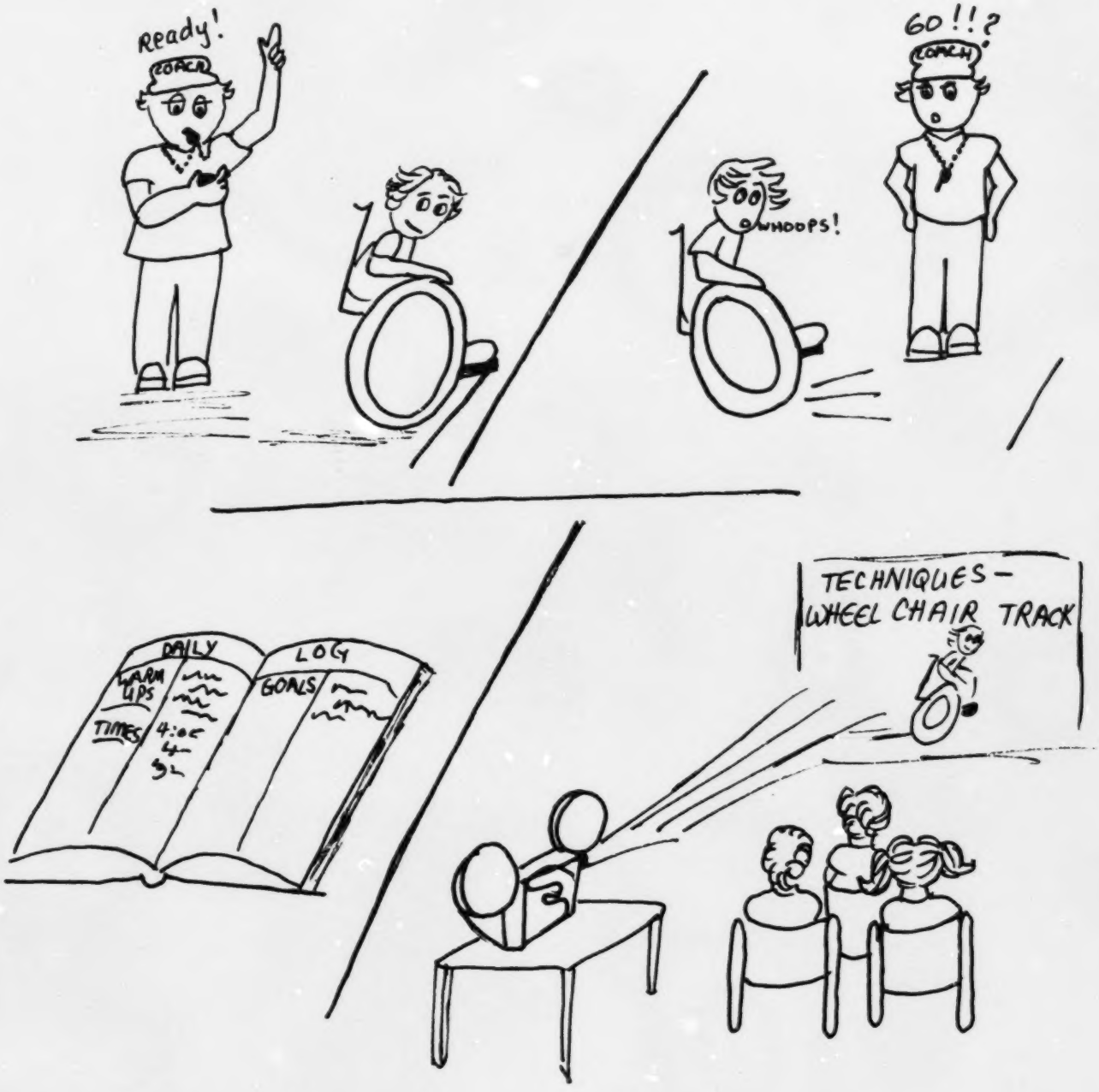
- Be sure an ample amount of practice is done in a clockwise direction so that an equal balance is maintained between right and left arms; this is especially important for competitors who must go around turns.

- Emphasize quantity of work during pre and early season; gradually give more attention to quality of work in mid and late season. As dates for key meets approach, practice times should never be slower than pace anticipated for actual competition in a specific meet. Workouts and practice sessions are built around partial distances done at pace or faster. Use speed work as a means of preparing for fast times in competition.

- Plan a race, then race the plan. Have a strategy for each competitive effort that takes into consideration time in the season, type and importance of the meet, distance, pace, personal condition, number in the race, finals or qualifying heats, and information about opponents--how each paces him/herself, competiveness, physical condition, respones to challenge and ability to kick. While an athlete must be conscious of desired and actual pace for each race, he/she must also be race conscious. Contact with other competitors is vital, especially the closer the abilities of competitors and the nearer the finish line approaches. An athlete must know when to abandon a race plan and go for broke; every athlete must know when to gamble and when to be conservative and remain with a race plan.

. Concentrate on only one thing at a time in practice and in competition--minds function more effectively and efficiently in this way. This approach enables an athlete to concentrate on specific needs in practice and strategy during competition. Elements of good form and pace knowledge become automatic by developing appropriate habits in practice. In a given workout an athlete can concentrate on numerous needs, but only one at a time.

Remember, good wheeling is an accumulation of much wheeling--practice does make perfect.



TYPES OF WORKOUTS

Success on the track in a wheelchair requires more than going out and turning a few laps. A comprehensive program leading to championship performances requires a variety of workout approahces and practice patterns. Even though each of the following types of workouts is designed for specific purposes, individual athletes must determine through use how and why he/she can benefit most from them.

Interval Workouts

Interval workouts can be used for various purposes--strength, endurance, pace, rhythm, speed. Ways in which interval workouts are structured determine their purposes and desired benefits for athletes. Interval workouts are timed on a track or over an exactly measured course. Five variables make this a very adaptable and flexible type of training procedure--

- Distance over which athlete is timed.
- Time at which the distance is covered.
- Repetitions or number of times the distance is covered at the specified time.
- Time between repetitions. Some individuals separate repetitions by moving slowly through the distance over which they have just been timed. However, timing rest intervals makes for more exacting workouts.
- Activity during rest interval. Slow, continuous movements are better and more beneficial than simply sitting and waiting for the next repetition.

Speed Play

Speed play, done off the track and without timing, adds an informal, different, and enjoyable training procedure. Interval principles are incorporated and applied as an athlete controls his/her workout according to the way he/she feels.

The basic idea of speed play is to become accustomed to going faster and further than required in a race without getting tired. When tired, move very slowly for a few minutes and then pick up the program again. However, don't use this as a crutch on which to justify stopping--you can keep on going even though you might not think you can. Mental attitude is one of the biggest parts of championship performances in wheelchair track; speed play is not an easy way to become good in track; it is another method to help in the overall program. To become successful in wheelchair track, hard work is a necessity. Good wheelin' is an accumulation of a lot of wheelin'!

Speed play consists of...

...easy wheeling for ten to fifteen minutes as a means of warming up. In the early season, however, warm up by using exercises with special emphasis upon strengthening abdominal muscles and preparing arm muscles for hard work.

...steady hard speed--faster than usual pace--for 3/4 to 1½ miles (as the season progresses this should be increased to 1 to 1 3/4 miles). At all times make sure that good form is emphasized. Pick different areas for workouts--enjoy yourself.

...easy wheeling for five minutes.

...easy wheeling with three to four quick movements at least twice per minute. These quick movements are like sudden speeding up during a race to fight off a challanger who is trying to pass or to pass another competitor. This is called a check out which is similar to a quick but short sprint.

...some full speed up hill sprints at least every five minutes. This entire process--check outs and hill work--should last ten to twenty minutes.

...fast pace carried for one minute. This should be repeated until the end of the speed play or practice session. After the fast pace move easily until the next one. Rest periods should not exceed one to two minutes. Athletes should feel stimulated rather than tired at the completion of this phase of the workout.

...pace work on the track if designated.

Reminders--

- You got out of speed play just what you put into it--the more put into it, the more benefits that are derived.
- Speed play is an excellent type of workout for a weekend or when extra work is needed.
- Speed play is the type of workout that great distance runners of the world credit with making them successful--make it part of your road to success.
- Speed play can be even more effective when two or more squad members work together.
- To add interest, include such variations as back to front, follow the leader, foxes and hounds, tag, and other games that you may invent as long as main phases of the workout are included.

Distance Workouts

Distance workouts are done off the track--on roads, in streets, through woods, on all weather accessible paths--and without being timed. Distance workouts are used a great deal in preseason training to help build a solid foundation through the accumulation of a great deal of mileage. Long continuous distance work, including as much hill work as possible, is not generally used more than once a week, and then early in the week. Since this is not a timed workout the principle of increasing distances through the week does not apply. A distance workout is an appropriate approach when physically sore or psychologically

drained during pre and early seasons. During any part of the season distance workouts can be used the day after a particularly hard or trying meet. However, speed play workouts can accomplish many of the same things as distance approaches but in more interesting, appealing, and adaptable ways, especially when preparing for specific meets during the track season itself.

Rhythm Workouts

Rhythm workouts are designed so that a stipulated pace is maintained for various distances. For example, a 6:00 miler would strive for 3/4 mile in 4.30, ½ mile in 3.00, 440 yards in 90 seconds, 220 yards in 45 seconds, 110 yards in 22.5 seconds, and 55 yards in 11.25 seconds. Combinations and times must be adjusted to fit needs of each athlete in terms of distances, times, repetitions, and rest intervals. This rhythm approach can be applied for athletes competing at any distance.

Pace Work

Pace work at different distances is vital for developing an internal stopwatch on the part of an athlete. Only so much energy is available for an athlete to expend in any race at any distance. Despite ways in which many competitors split times, even pace--distributing energy equally over a race--is the most economical and effective approach. However, individual differences in distances, abilities, confidence, experience, opponents, and races themselves can result in slight deviations from exact even pace for some competitors in specific meets. Generally the longer the distance the more important even pace for optimum energy utilization.

INTEGRATING MEET AND PRACTICE TIMES FOR EVEN PACE ONE MILE*

			Times for practice intervals of --		
	Mile Time	Average 440 yard Time	440 yards	880 yards	3/4 mile
Meet time	6:00	90 sec.	86 sec.	2:54	4:21
New goal	5:48	87 sec.			
Meet time	7:12	1:48	1:46	3:30	5:15
New goal	7:00	1:45			
Meet time	8:00	2:00	1:56	3:54	5:51
New goal	7:48	1:57			

Rules of Thumb:
(1) Keep each 440 at same speed in meets
(2) Keep interval 440's 4 sec. faster than average 440 time in previous meet's timed mile--this will be 1 sec. faster than average 440 time for new goal.
(3) Keep interval 880's and 3/4 miles so that each 440 is 3 sec. faster than average 440 in previous meet's timed mile.

*Times expressed in seconds or minutes and seconds.

PACE GOALS

Mile Goal	3/4 Mile	880 Yards	440 Yards	220 Yards	110 Yards	55 Yards
12:00	9:00	6:00	3:00	90	45.0	22.5
11:48	8:48	5:52	2:56	88	44.0	22.0
11:30	8:36	5:44	2:52	86	43.0	21.5
11:12	8:24	5:36	2:48	84	42.0	21.0
10:56	8:12	5:28	2:44	82	41.0	20.5
10:40	8:00	5:20	2:40	80	40.0	20.0
10:24	7:48	5:12	2:36	78	39.0	19.5
10:08	7:36	5:04	2:32	76	38.0	19.0
10:00	7:30	5:00	2:30	75	37.5	18.75
9:52	7:24	4:56	2:28	74	37.0	18.5
9:36	7:12	4:48	2:24	72	36.0	18.0
9:20	7:00	4:40	2:20	70	35.0	17.5
9:04	6:48	4:32	2:16	68	34.0	17.0
8:48	6:36	4:24	2:12	66	33.0	16.5
8:32	6:24	4:16	2:08	64	32.0	16.0
8:16	6:12	4:08	2:04	62	31.0	15.5
8:00	6:00	4:00	2:00	60	30.0	15.0
7:44	5:48	3:52	1:56	58	29.0	14.5
7:28	5:36	3:44	1:52	56	28.0	14.0
(7:12)	(5:24)	(3:36)	(1:48)	(54)	(27.0)	(13.5)
6:56	5:12	3:28	1:44	52	26.0	13.0
6:40	5:00	3:20	1:40	50	25.0	12.5
6:24	4:48	3:12	:96	48	24.0	12.0
6:08	[4:36]	3:04	:92	46	23.0	11.5
6:00	4:30	[3:00]	:90	45	22.5	11.25
5:52	4:24	2:56	[:88]	44	22.0	11.0
5:36	4:12	2:48	:84	[42]	21.0	10.5
5:20	4:00	2:40	:80	40	[20.0]	10.0
5:04	3:48	2:32	:76	38	19.0	[9.5]

Times expressed in seconds or minutes and seconds.

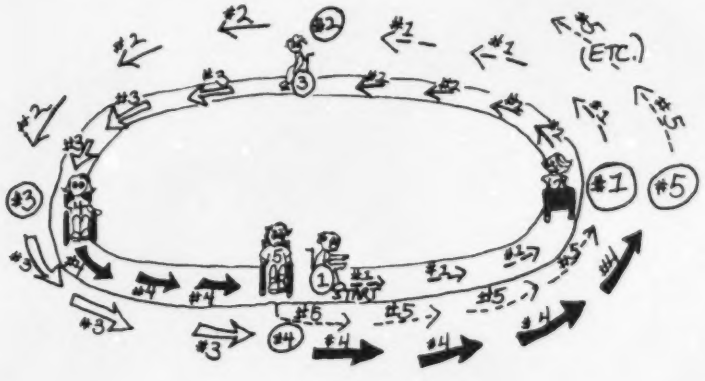
Rule of thumb for accelerated rhythm workouts--run 3/4 mile slower than pace, 880 yards at pace, and all shorter distances faster than pace--note example ☐ for 6:00 miler; apply this principle to other distance combinations according to needs and condition of individual athletes.

Rhythm workouts consist of different distances run at a consistent pace as shown ○ for a 7:12 miles. Partial times can be used for interval or pace workouts.

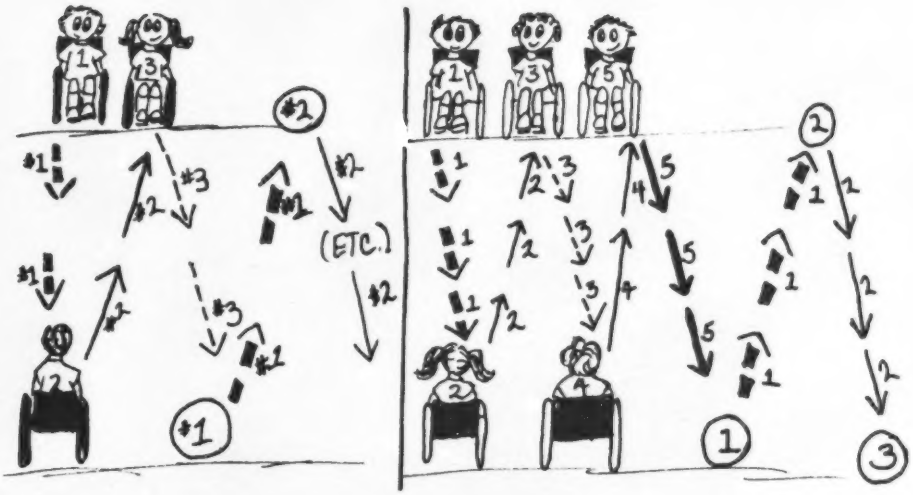
Speed Work

Speed is the key to championship performances regardless of distance. As distances increase, the longer time fast speeds can be maintained, the better the performances. Speed is important for developing fast starts, fighting off challenges, and attaining good finishing kicks even though in some instances good finishing kicks represent individuals who simply slow down least. Many different ways can be used to develop the all important speed ingredient--

- Wind sprints--sprint full speed various distances--20, 25, 30, 40 yards, maintaining speed and relaxed form; move slowly between sprints; repeat sprints designated number of times or for prescribed time; vary by sprinting stipulated distance, return immediately to finish line, and sprint back to start, take brief rest before starting next pair of sprints; continue pattern for designated repetitions or time.
- In-and-out curves and straights--sprint curves (in) and move easily straight aways (out) emphasizing various aspects of form; for variation reverse and sprint straight aways and move easily on curves.
- Revolving relays in which the squad is divided into teams of five each. The first and fifth athletes go to the starting line with number two going to a point 110 yards from the start, number three 220 yards from the start, and number four 330 yards from the start. The Revolving Relay continues with #1 touching off #2, #2 touching off #3, #3 touching off #4, #4 touching off #5, #5 touching off #1, continuing in this way until each athlete has sprinted 110 yards four times.



Revolving Relays can be done in shuttle formation with three or five athletes on each team. Distances can be 50, 55, 100, or 110 yards with all odd numbers starting at one end and even numbers at the other. Touch off patterns are shown on the next page. Revolving Relays are excellent activities with which to end practice sessions. They bring the team together, develop group unity and cohesiveness, prepare all for relay competition, and force speed through fatigue at the end of workouts.



Repeat as many 25, 50, or 100 meter yard dashes as possible in a specified time--15, 30, 45, 60 minutes. An increase in number of dashes completed from workout to workout indicates either a shorter rest interval between repetitions or repetitions done at faster speeds--either is desirable and shows progress.

Hill or Ramp Work--Up

Hill or ramp work--up should be done daily to further strength and endurance so important to competitors at all distances. A hill or ramp twenty to thirty meters or yards long and about thirty to forty-five degrees is ideal. Athletes go up to the top of the hill or ramp as fast as possible, turn and coast down, repeating for a specified number (10, 15, 20, or more) or length of time (5 to 10 minutes). When a specified number is done, length of time in which this is accomplished should decrease. When a given length of time is used, number of repetitions should increase.

Hill or Ramp Work--Down

Hill or ramp work--down is especially effective with sprinters who should include this in their workouts a couple of times per week. Individuals in longer events can benefit from occasional down hill or ramp work. Athletes wheel as fast as possible down a hill or ramp twenty to thirty meters or yards long and about thirty to forty-five degrees. In middle or long distance events practice at faster than pace helps to develop speed. Since sprinters go at top speed, ways to move still faster must be devised; gravity assists in this when wheeling down hill as prescribed. By wheeling down hill or ramp the athlete not only goes faster but trains arm muscles in speedier responses and reactions. A specified number of repetitions or length of time is incorporated into practice sessions for down hill or ramp work.

Form Work

Form work is necessary to develop the most efficient and effective possible use of energy. Type, level, and degree of impairment, body build, hand positions on drive wheels, body positions in the chair, placement of center of gravity, and the wheelchair itself affect form on both straightaways and turns. A portion during the early part of every workout needs to be devoted to perfecting specific elements of good form. Good form must be developed through practice at less than all out speeds. As form becomes more efficient practice speeds for form purposes can be gradually increased. Only think about and concentrate on one element of form at a time. Many specific drills, exercises, and activities can be used to help in this process.

- Use laps done individually or with partners to emphasize particular elements of good form. Strive to increase speed by improving a specific element of form and without increasing effort and expenditure of energy.

- Incorporate form development into workouts such as those emphasizing speed play, distance, rhythm, and pace.

- Introduce back-to-front drills to emphasize form. Have four to six athletes in single file formation. Wheel slowly around the track; during this time emphasis and concentration can be upon perfecting specific elements of good form. The last individual sprints past the others to take the front position in the line. This procedure continues with each new last athlete sprinting past others after the one who went before has settled into the front of the line. Back-to-front drills can also be used to emphasize passing opponents, short sprints to fight off moves by opponents, and sprint form; it also is an effective way to develop and further important feelings of team unity that are often overlooked in so called individual sports such as track and field.

ANOTHER PACE APPROACH

Even pace is ideal but often difficult to attain. Although the following rules of thumb deviate slightly from exact even pace, they provide a proven framework for fast times through efficient use of energy.

- *In the 440, make the first 220 two seconds faster than even pace and the second 220 two seconds slower than even pace. For example, an 80 second quarter is split 38-42 with 110s 18-20-21-21 and 55s 8.5-9.5-10.0-10.0-10.5-10.5-10.5-10.5.*

- *In the 880, the first 440 is two seconds faster than even pace and the second 440 two seconds slower than even pace. For example, a 3:00 half mile is split 88-92 with 220s 43-45-46-46; and 110s 21.0-22.0-22.5-22.5-23.0-23.0-23.0-23.0.*

- *In the one mile, the first half mile is two seonds faster than even pace and the second half mile two seconds slower than even pace. For example, a 6:00 mile is split 2:58-3:02 with 440s of 88-90-91-91 and 220's 43.5-44.5-45.0-45.0-45.5-45.5-45.5-45.5.*

TRACK EVENTS

Individual events in wheelchair track include sprints--100 yards or meters and less--and distances--220 yards or meters through 1500 meters or one mile. With recent interest and participation in distances up to and including wheelchair marathons--26 miles 385 yards--middle distance might be more appropriate terminology for 220 yards or meters through 1500 meters or one mile. Regardless of distance there is no short cut to success in wheelchair track--the only formula for success is hard work. Challenging drills and motivating practice activities must be designed for specific purposes. In addition to basic principles discussed previously, specific attention must be given to starting procedures for all distances, training for specific events, and finishing all races. Special attention must be given to relays and for athletes taking part in the pentathlon.

Starting

Good starting mechancis are essential at all distances in wheelchair track. Sprints are often won or lost at the starting line. Good positions in middle and long distance races often come from effective starts. Poor starts not only affect athletes psychologically but make them work harder and longer to reach peak sprint speeds or attain most efficient and effective pace for middle and long distances. As in any type of training, a systematic and intelligent approach is a must to attain good starting mechanics.

- Work to have each athlete in a position with his/her center of gravity as far forward as can be handled.
- Incorporate fast starting techniques in a variety of relays and shuttle activities; use innovations such as stopping and starting on various signals to help improve reactions and starting mechanics.
- Practice starting form; emphasize each segment at different times.
- Time 15, 20, 25 yard dashes to show improvement and how starts influence times for short distances; record times on bulletin board and in personal logs to chart progress.
- Include stop and go starts in which the athlete starts, sprints a predetermined distance, stops, starts again, and continues in this pattern for a designated time or number of starts or laps.
- Include reaction starts in which the athlete develops reaction to sound of any type; concentrate on initial movements of start and reacting to starting sound; use loud sounds initially and gradually reduce to sharpen reaction to sound.
- Include all out - full speed - practice starts as part of each athlete's practice regimen.
- Use blank cartridges or extremely loud clap of Scotch gun; use a blank chamber or quiet clap to determine whether the athlete is listening for gun or actually reacting to any sound.

- Introduce all out starts only after the athlete has trained for several weeks and his/her arms are in good enough condition to withstand stress of all out starts.

- Be sure the athlete has warmed up thoroughly before practicing all out starts

- Work on all out starts early in a practice session to reduce chances of muscle pulls or suffering another injury due to fatigue.

- Restrict all out starts to one practice session a week and limit all out effort to eight or ten starts.

- Vary cadence when giving starting commands to reduce chance of the athlete guessing or starting in a set rhythm.

- Practice starts individually and then with one or more teammates.

- Incorporate staggered starts in different sections of practice sessions such as running activities, form work, starts; practice starts where different races and relays actually begin.

- Develop your own devices and activiites for practicing starting mechanics, fundamentals, and procedures; encourage athletes to develop their own approaches and activities.

Finishing

No race is over until a competitor is across the finish line. Races can be lost because an athlete who feels he/she is home free eases off before actually crossing that final line. To eliminate any chance of a premature finish, each athlete at whatever distance he/she competes should psychologically and physically go through the finish line by moving at full speed to a point five to ten yards or meters beyond the actual finish line. A good finish can not be left to chance but must be given special attention and practiced as conscientiously as any other part of a race.

- Introduce concept of fast finishes through relays and shuttle activities.

- Incorporate fast finishes and breaking tape in specially devised shuttle relays in which two athletes hold finish yarn for each team; outgoing runner may not start until incoming youngster breaks tape.

- Combine finishing practice with competing in lanes; place string or yarn at various places so get used to breaking tape.

- Practice finishes at end of different drills and various running activities.

- Provide time and opportunities for athletes to practice finishing form; do this slowly at first and gradually increase speed as skill and confidence improve.

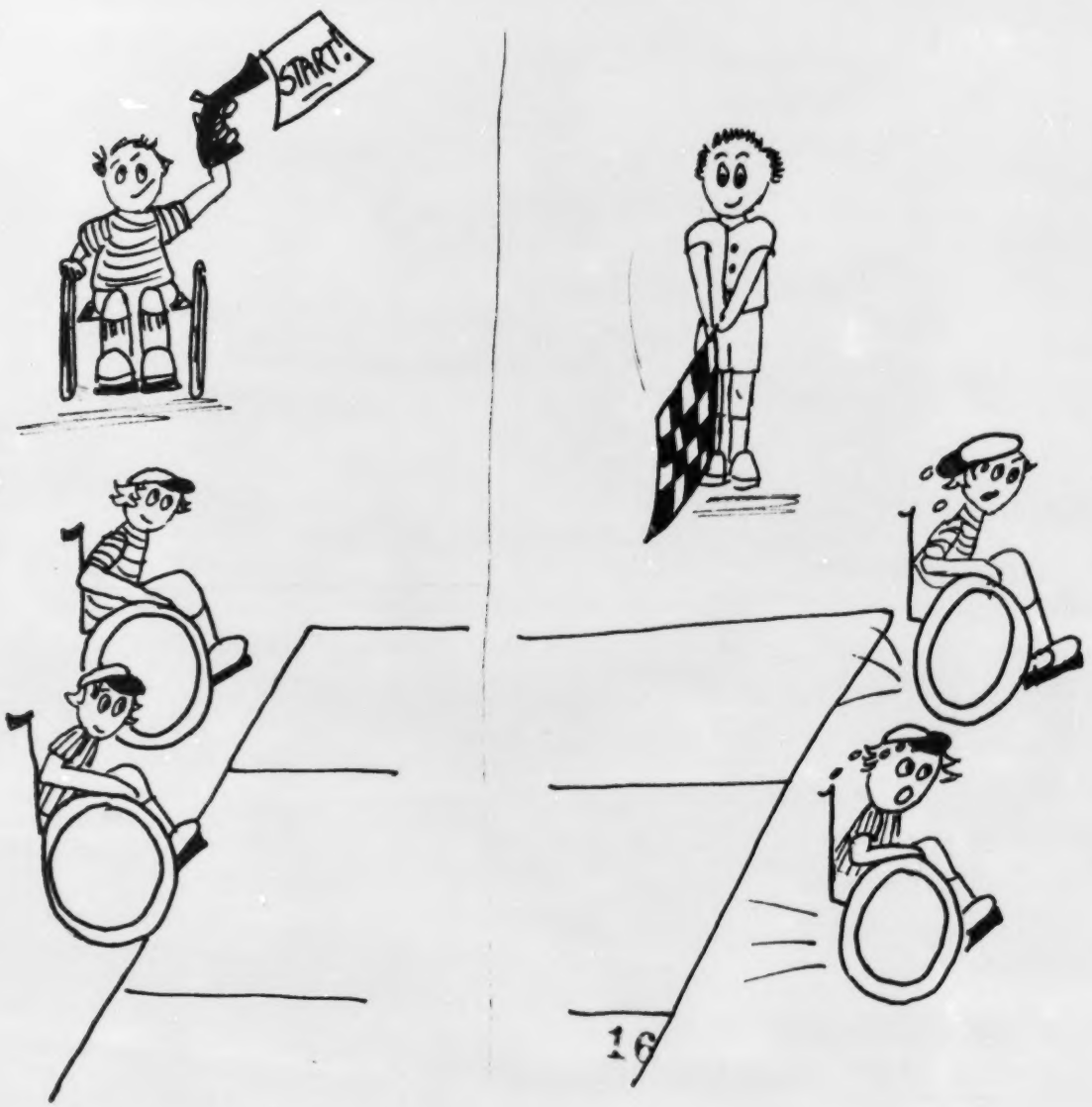
. Place colorful markers, bleach bottles, milk cartons, traffic cones, bowling pins, coat hangers with colored cloth, string, or rope some distance beyond actual finish line to help athletes develop concept and idea of moving through or past actual finish line.

. Use specific drills to develop a strong, fast, and efficient finish--

--Plus 10--have two or three athletes finish together seeing who can break the tape with all continuing ten yards further to a second mark, teammate, or coach.

--Finisher--start two sprinters 10, 15, or 20 yards from finish line and have them wheel together through finish; make this competitive--see who breaks tape first.

--Finish accelerator--synchronize arm movements while wheeling with a partner--with no conscious thought of accelerating, see who can break tape while emphasizing good finish form.



RELAYS

Basic principles for relay competition are little different for shuttle relays or circular relays going around the track. Fundamentals of basic form and for practice of specific distances are the same as for dashes. A team that learns to touch-off effectively can often gain enough yardage to win a close race even though opposing teams have faster competitors! Organizing a relay team to make best use of each competitor's talents is vital to the success of a team.

Relay Strategy

Consider each competitor's speed, condition, and ability to work with other competitors in determining order in which team members compete. For example--

- Lead-off--best starter, often second best competitor.
- Second--slowest or least experienced competitor, particularly if he/she works well with lead-off competitor.
- Third--guttiest competitor who is most likely to come from behind; often third fastest competitor.
- Anchor--fastest competitor and best finisher.

Consider other possibilities in setting up relay teams such as--

- Lead-off slowest competitor, followed by next slowest second, second fastest third, and fastest anchor; this is an accelerating team.
- Lead-off fastest competitor followed by next fastest second, second slowest third, and slowest anchor; this is a decelerating team.
- Lead-off fastest competitor and anchor second fastest particularly if he/she is a strong finisher.
- Use fastest competitor in second position so that he/she competes against slowest members of other teams.
- Compete on a person-to-person basis when abilities and weaknesses of other teams are known so that specific competitors are matched against each other.

Consider whether an individual is right or left handed when determining order for relay teams going around the track since first and third competitors touch-off with right hands and second with his/her left hand. Some individuals can adjust better to this than others so that their positions on a relay team are determined or adjusted accordingly. Obviously, an individual who has difficulty in touching-off might be considered for the anchor position.

Coaching Activities

Perfecting a smooth and speedy relay team requires time and much opportunity for members of the team to work together. Practice must be approached intelligently. Individual athletes must first develop the mechanics of efficient touch-offs. Then they must apply those so that perfect timing results when working with specific teammates at a given distance. Championship performances in relays cannot occur by simply getting four athletes together at the last minute. As in any other team activity, true champions who come through when the going is toughest develop individual skills and then hone them to the highest degree together.

- Introduce relay concepts through a variety of line and shuttle relays.
- Divide squad into groups of five for Revolving Relays as described on page 10.
- Plan intrasquad relay meets to include regular and medley relays with legs of varying distances for either shuttle or circular patterns.
- Work on fundamentals of touch-off at slow and medium speeds gradually increasing tempo to race speed as athletes gain experience working together and achieve timing, rhythm, and continuity.
- Have some relay work in every practice session especially in fun ways at the end of workouts.
- Plan specific opportunities for competitive relay teams to work together to perfect timing and help athletes become aware of each other's moves; master mechanics and timing of touch-off; establish trigger or starting point for each outgoing athlete; adjust trigger points according to weather conditions and individual athletes.

Touch-off

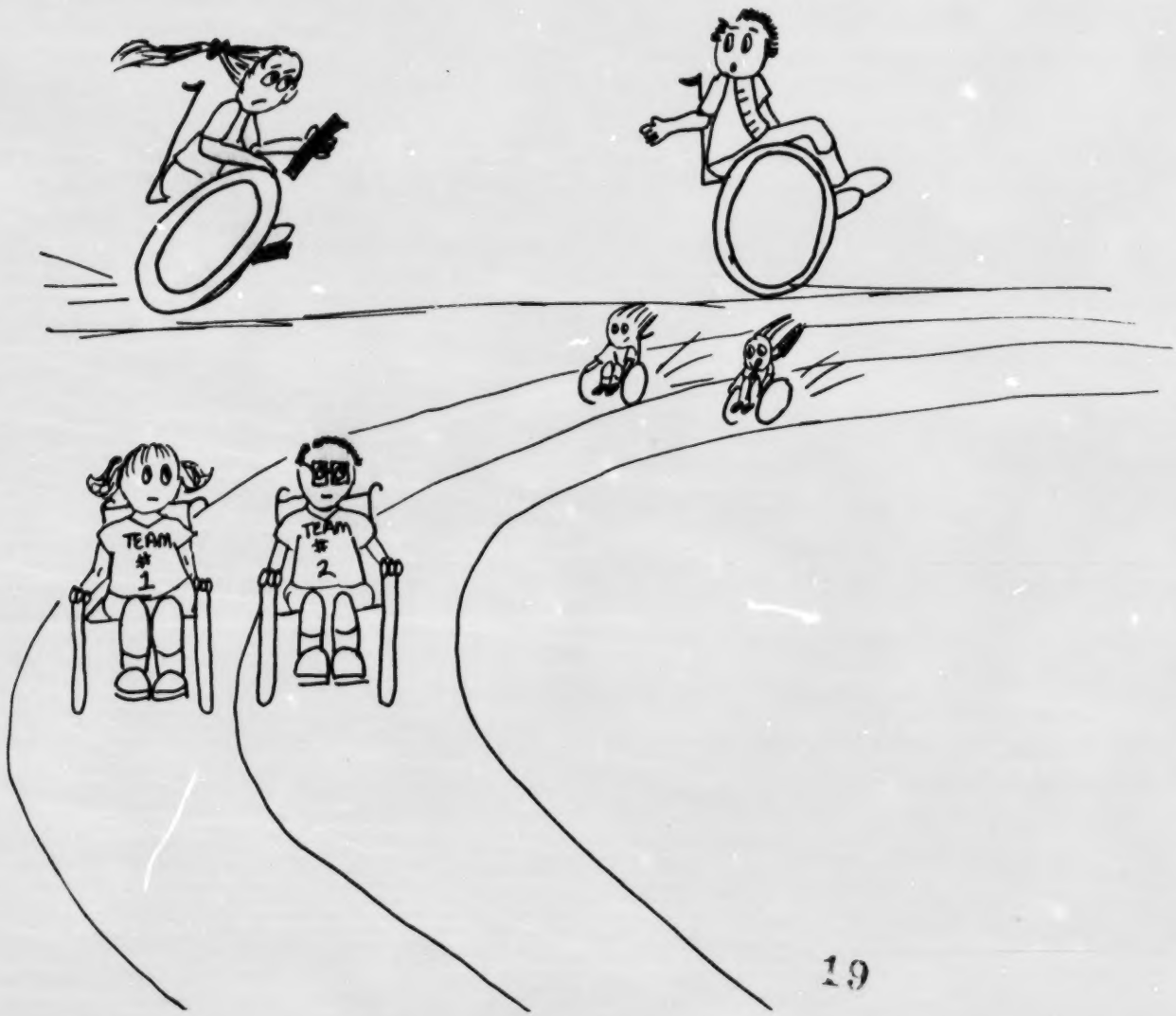
Practice and working together are important ingredients to attain champsionship relay performances--there are no short cuts for developing timing, rhythm, and continuity demonstrated by top teams. Principles, fundamentals, and approaches are basically the same for shuttle and circular relays. Adaptations and applications are slightly different since competitors are moving toward each other in shuttle relays while they are moving in the same direction in relays going around the track.

- Establish a trigger or starting point to indicate when the outgoing athlete is to start; mark this point on the track with some type of tape--i.e., masking or adhesive.
- Watch incoming athlete until he/she reaches prearranged trigger or starting point on the track when outgoing athlete starts, accelerating as quickly as possible.
- Continue to look at incoming athlete until touch-off occurs and then go-go! In circular relays outgoing athlete turns head forward as soon as touch-off occurs.

- Consider nonvisual touch-offs for circular relays. As soon as the incoming athlete reaches the trigger or starting point, the outgoing athlete starts, immediately turning his/her head forward. Timing is critical in nonvisual touch-offs since a small miscalculation can result in a team fouling and being disqualified.

- Time touch-off so actual touch takes place one or two yards or meters from the starting line in shuttle relays and between seventeen and eighteen yards from the incoming restraining line in a twenty yard zone in circular relays.

- Slow down only if beyond fifteen yard mark in touch-off zone and incoming athlete cannot complete touch in the zone; incoming athlete yells, "Wait," "Stop," "Slow-down," "Help!" Outgoing athlete eases up and waits--it's better to wait than foul and be disqualified.



SELECTED RESOURCES

Competitive Athletic Programs for Impaired, Disabled and Handicapped Persons. Washington, D. C.: AAHPER/IRUC (1201 16th Street, N. W., 20036). $2.00.

Conditioning for Rehabilitation in Athletics and Wheelchair Sports - A Year Round Program. Robert R. Spackman, Jr. Murphysboro, Illinois: Schwebel Pringtin (P. O. Box 433, 62966), 1976.

NASCP - USA Constitution, Rules, Classification and National Records Sports Manual. New Haven, Connecticut: National Association of Sports for Cerebral Palsy, 1979.

National Wheelchair Athletic Association: Constitution and Rules; Training Techniques and Records. Woodside, New York: National Wheelchair Athletic Association, Annual.

So Get On With It: A Celebration of Wheelchair Sports. Marilee Weisman and Jan Godfrey. New York, New York: Doubleday & Company (245 Park Avenue, 10017), September 1976.

Textbook of Sport for the Disabled. Sir Ludwig Guttmann. Aylesbury, Bucks, England: HM + M Publishers (Milton Road), 1976.

Wheelchair Champions: A History of Wheelchair Sports. Harriet May Savitz. New York, New York: Thomas Y. Crowell (10 East 53rd Street, 10022), 1978.

Key Periodicals

Achievement. The Achievement Disabled Action Group, 925 N. E. 122nd Street, North Miami, Florida, 33161.

Paraplegia News. Paralyzed Veterans of America, Inc., 935 Coastline Drive, Seal Beach, California, 90740.

Sports 'N Spokes. 6043 North Ninth Avenue, Phoenix, Arizona, 85013.

Organizations

National Wheelchair Athletic Association
40-24 62nd Street
Woodside, New York, 11377
Ben Lipton

National Association of Sports
for Cerebral Palsy
1 State Street
New Haven, Connecticut, 06511
Craig Huber

National Wheelchair Basketball
Association Project
366 Waller, #119
Lexington, Kentucky, 40504
Ed Owen

Films

Paralympics (16mm, sound, color, 13 minutes).
Chairman, United States Wheelchair Sports Fund, 40-24 62nd Street, Woodside, New York, 11377.

Paralympics - Israel 1968 (16mm, sound, color, 10 minutes).
Chairman, United States Wheelchair Sports Fund, 40-24 62nd Street, Woodside, New York, 11377.

It's Ability That Counts (16mm, sound, color, 32 minutes).
International Rehabilitation Film Library, 20 West 40th Street, New York, New York, 10018.

Olympics on Wheels (16mm or video cassette, sound, color, 18 minutes).
Woodrow Wilson Rehabilitation Center, Fisherville, Virginia, 22939.

To Live On (16mm, sound, color, 26 minutes).
Joseph Bulova School of Watchmaking, 40-24 62nd Street, Woodside, New York, 11377.

The Virtue of Energy (16mm, sound, color, 33 minutes).
International Rehabilitation Film Library, 20 West 40th Street, New York, New York, 10018.

The Fundamentals of Wheelchair Basketball for Women (½' video tape, black and white, 18 minutes).
National Wheelchair Basketball Association, Office of the Commissioner, 110 Seaton Building, University of Kentucky, Lexington, Kentucky, 40506.

PROVEN IDEAS FOR CHAMPIONSHIP PERFORMANCES

Systematic Practice Patterns

Emphasis in the early part of the season should be upon amount or quantity of work; later in the season it should be upon speed and quality of work. For example, weekly practice patterns for competitors in middle distance and distance events should generally place emphasis on . . .

Monday

... overdistance and continuous running for endurance.

Tuesday

... interval training for endurance, pace, or speed.

Wednesday

... pace work at various distances.

Thursday

... rhythm workouts for endurance or pace.

Friday or Saturday

... time trials, intrasquad meets, play days, novelty workouts, or actual competition. If competition is on Saturday, determine most effective approaches for each athlete on Friday--light workout, rest, strategy session, watch films of past meets and of competitors in the next day's meet.

The way in which an athlete paces him/herself in time trials or competition is also important to the next week's practice pattern. Any appreciable deviation from even pace for any segment of a race provides basis for practice the following week. For example, if . . .

...first half is considerably faster than second half - emphasize pace and endurance.

...first half is considerably slower than second half - emphasize pace.

...last quarter is considerably slower than each of first three quarters and/or athlete fades in final stretch--emphasize endurance and speed.

...times for quarters are extremely uneven--emphasize pace.

Additional Drills

- Form wheeling--move at quarter, half or three-quarter speed, concentrating on specific aspects of form; think about individual elements of form; experiment to find best body position, most efficient wheeling pattern, how form changes at different speeds, how to gain speed on turns, checking out.

- Pyramid--go distances of 55, 110, 220, 330, 220, 110, and 55 yards with rest intervals of 1-2-3-3-2-1 minutes or slowly move distance just completed. Pyramid workouts may or may not be timed; distances and rest intervals may vary according to individual condition and ability. Some athletes may have to start with a pyramid pattern of 55, 110, and 55 yards. As athletes get in better condition, pyramids can be repeated several times, distances increased, and/or rest intervals shortened.

- Go, durn ya, go--sprint 220 yards two to three seconds faster than race pace; wait no more than two minutes and then sprint 110 yards all out. When repeating in the same practice session, let athlete recover almost fully before next repetition. Adjust this pattern for longer distances by going first three-quarters of the race faster than pace, resting 30 seconds to two minutes, and then going last one-fourth all out.

- Superduper--go 300 yards two to three seconds slower than race pace and continue to a point 30 to 50 yards further; make conscious effort to sprint all out and maintain good form for the extra yards.

- Neutral-babe-neutral--sprint to a predetermined point--100 to 125 yards depending on individual ability and condition--at which time whistle is blown or some other signal given to indicate where to start float; continue float for 25-30 yards; a mark on or near track may also be used to indicate where to start float. In float, use momentum generated in initial sprint to keep speed up while using less pushing power--this is much like getting to a certain speed in a car on a bicycle and then maintaining speed while coasting in neutral.

Preparing for the Big Meet

The importance of practice sessions the week of the big meet cannot be overemphasized. Athletes have worked hard and long to get in condition, improve endurance, gain speed, learn pace, and prepare themselves psychologically, emotionally and physically for this important competitive effort. Just as daily practice sessions and weekly workout patterns must be developed to meet individual needs, so must final preparations during this last week. Therefore, these suggestions and guidelines are presented:

- Emphasize quality and speed rather than quantity and number of repetitions or sets.

- Be sure the athlete is well rested and has lots of energy on the day of competition; plan relaxing and fun practice activities for the day or two before competition. Some athletes do not work out at all the day before competition--this is a highly individual matter.

- Stress desired race pace throughout this week regardless of workout distances; complete each practice session with speed or sprint work to strengthen the finishing kick.

- Develop practice patterns to meet specific needs of each athlete; several individuals preparing for the same race may have quite different practice patterns.

- Stress continually the importance of pace--leading at the end of the first or second lap is not nearly as important as being first at the end of the fourth lap in the mile!

Plan Races Accordingly

The third one-fourth of races at any distance is the most difficult; the third one-fourth of each lap is often the slowest. Therefore special attention must be given to the third one-fourth of every race and each lap.

- Approach races psychologically and emotionally so that desired pace is exactly reached at the three-quarters mark, and then use competitiveness and desire as means to attain an even faster than planned last one-fourth of the race.

- Work harder mentally during the third one-fourth of each lap to avoid the tendency to slow down and lose valuable time during this critical phase of the race.

- Remember, confidence is the feeling that with preparation and application you will succeed.

ENDURANCE ----- PACE ----- SPEED

To attain championship performances in wheelchair track, athletes must develop endurance, build speed, and learn pace.

Endurance - ability to go for increasing distances and periods of time. Remember athletes must be trained to go faster for longer periods of time; in many races at all distances winners are individuals who slow down least.

Pace - ability to go specific distances in prescribed times. Remember, athletes should be trained physically, emotionally, and psychologically to attain even pace, e.g., a 6:00 min. mile consists of 4-90 sec. ¼; a 30 sec. 220 of 2-15 sec. 110's.

Speed - ability to sprint, move fast, go all out. Competitors in middle distance and distance events become sprinters during their all out finishing kicks.